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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,309	06/25/2003	Thomas Klenk	331.1041	5228

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EXAMINER
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PEAVEY, ENOCH E

ART UNIT	PAPER NUMBER
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3676

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/603,309

Applicant(s)

KLENK ET AL.

Examiner

Enoch E Peavey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) 17-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 25 June 2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

I. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

A. Claims 1, 2, 4, 8-10, 13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Paulsen, US No. 3,438,639 ("Paulsen").

1. Paulsen discloses an axial shaft seal (Fig. 1) disposed between a housing wall (13) and a rotating shaft (1).

2. The axial shaft seal comprises an outer ring (3) insertable into the housing wall (13) in a stationary and sealing manner (Fig. 1).

3. The outer ring (3) including a sleeve (generally arcuate portion of 3) including a polymer material extending radially inward and having a spring bellows form (i.e. a generally flexible, bending shape).

4. A radially inward end portion (7) of the sleeve having a first sealing surface (at 8).

5. There is an inner ring (12) connectable to the shaft (1) in a non-twisting and sealing manner and including a ring flange (i.e. it extends perpendicular to the shaft) extending radially outward so as to provide a second sealing surface for axially mating the first sealing face (Fig. 1).

6. The inward end portion of the sleeve includes circular ring (generally 7) extending in a radial direction.

7. The circular ring (generally 7) includes one or more sealing surfaces (e.g. 14).
8. The sleeve includes a folded bellows (i.e. the generally bent flexible shape). The bellows open toward a lubricant side of the seal (Fig. 2).
9. The outer ring (3) includes a reinforcement member (4).
10. The inner ring is made of metal (see cross hatching).

B. Claim 1, 2, 4, 5, 8 –12, 14 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnston, US No. 5,348,312 ("Johnston").

1. Johnston discloses an axial shaft seal disposed between a housing wall and a rotating shaft (FIG. 1).
2. The axial shaft seal comprises an outer ring (7) insertable into the housing wall in a stationary and sealing manner.
3. The outer ring (7) including a sleeve (approximate shaft 2) including a polymer material extending radially inward and having a spring bellows form (i.e its generally bent flexible shape).
4. A radially inward end portion (generally at end 12) of the sleeve having a first sealing surface (formed by 6).
5. There is an inner ring (3) connectable to the shaft (2) in a non-twisting and sealing manner and including a ring flange extending radially outward so as to provide a second sealing surface for axially mating the first sealing face.
6. The circular ring (6) includes one or more sealing surfaces (contacting 3.1).
7. The first sealing surface includes lubricant re-circulating grooves (6.1, 6.2).

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8. The sleeve includes a folded bellows (i.e. its generally bent flexible shape). The bellows open toward a lubricant side of the seal (FIG. 1).
9. The outer ring (7) includes a reinforcement member (5).
10. The circular ring (6) includes a reinforcement plate (6.3).
11. The inner ring (3) includes a circular flange (3.1) for providing an axial stop with the shoulder of a shaft (FIG. 3).

***Claim Rejections - 35 USC § 103***

- II. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

- A. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston.

1. Johnston does not disclose the end portion deviating from a radial normal direction by up to a maximum of 30 degrees when not axially mating the second sealing surface.

2. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Johnston to make the end portion not deviate from a radial direction by no more than 30 degrees when not axially mating the second sealing surface in order to find the optimum range in which sealing occurs, since it has been held that where the general conditions of a claim are disclosed in the prior art,

discovering the optimum or workable ranges involve only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233,235 (CCPA 1955).

B. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnston in view of Tellier, US No. 4,998,740 ("Tellier").

1. Johnston does not teach coating the sealing surface with a friction reducing coating such as PTFE.

2. Tellier teaches such a coating in order to accommodate adverse operation conditions (Col. 1, lines 46-47).

3. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Johnston as taught by Tellier in order to accommodate adverse operating conditions.

4. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paulsen in view of Tellier, US No. 4,998,740 ("Tellier").

5. Paulsen does not teach coating the sealing surface with a friction reducing coating such as PTFE.

6. Tellier teaches such a coating in order to accommodate adverse operation conditions (Col. 1, lines 46-47).

7. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Paulsen as taught by Tellier in order to accommodate adverse operation conditions.

***Allowable Subject Matter***

III. Claims 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

IV. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Enoch E Peavey whose telephone number is 305 1977. The examiner can normally be reached on Mon-Fri 8:00 am to 4:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (703) 308- 3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Enoch E Peavey  
Art Unit 3676

March 20, 2004

